

Appln. Ser. No. 10/815,605
Amtd. Dated February 5, 2008
Reply to Office Action dated August 8, 2007

APP 1478

The following listing of Claims will replace all prior versions, and listings, of claims in the application:

LISTING OF THE CLAIMS:

1 (Currently amended). A telecommunications system architecture comprising:
at least one access network;
a mobile host located in said access network;
a backbone network, including at least one application server;
an information gateway, acting as a proxy for different types of information distribution, located in said backbone network; and
an application-layer a throughput estimator residing on said information gateway;
wherein said mobile host communicates with said application server through said information gateway and said throughput estimator provides information useful in optimizing dynamically adjusting download rate to said mobile host.

2 (Original). A telecommunications system as set forth in claim 1, wherein said throughput estimator is selected from the group consisting of an ICMP-based throughput estimator, a HTTP-based throughput estimator, a TCP trace throughput estimator, and a SNMP-based throughput estimator.

3 (Original). A telecommunications system as set forth in claim 1, wherein said throughput estimator is a passive throughput estimator.

4 (Original). A telecommunications system as set forth in claim 1, wherein said throughput estimator is an active throughput estimator.

5 (Currently amended). A method of optimizing download rate to a mobile host from an application server in a telecommunications network, said method comprising:

Appn. Ser. No. 10/815,605
Amdt. Dated February 5, 2008
Reply to Office Action dated August 8, 2007

APP 1478

providing an information gateway between said mobile host and said application server capable of adjusting said download rate;

measuring a throughput rate using the following equation

$R(\tau) = M / \Delta t$, wherein $R(\tau)$ is the measured throughput rate, Δt is the a measurement time interval, τ be the a current measurement time and M is the a number of messages that arrive during the time interval;

calculating an estimated throughput rate for an application flow using the following equation

$\hat{R}(\tau) = \alpha(\tau) R(\tau) + (1 - \alpha(\tau)) E[R_{\tau-\Delta t}]$, wherein the estimated value $E[R_{\tau-\Delta t}]$ is a weighted average of the current measured value and the average of the last $K-1$ measured values where K is the index of the current measured value, and weight value $\alpha(\tau)$ is the an average fractional difference between consecutive measurements points;

calculating the difference between said measured throughput rate and said estimated throughput rate and if said difference is less than a predetermined sensitivity parameter, then increasing said download rate through said information gateway by a predetermined incremental amount.

6 (Original). A method according to claim 5, wherein said predetermined incremental amount is less than said predetermined sensitivity parameter.

7 (Original). A method according to claim 5, wherein said step of calculating an estimated throughput rate is carried out at said information gateway.

8 (Original). A method according to claim 5, wherein said step of calculating an estimated throughput rate is carried out at said mobile host.

9 (Original). A method according to claim 5, wherein said step of calculating the difference is carried out at said information gateway.